Attorney's Docket 117163-37

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Greenhut, et al.	Examiner:	Unknown
Ser. No.:	10/047,999	Art Group:	Unknown
Title:	STIMULATION ARRANGEMENT WITH STIMULATION SUCCESS MONITORING		
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PRELIMINARY AMENDMENT

This Preliminary Amendment is filed with the missing parts in the above case, which is based on US provisional application 60/262,243, filed 17 January 2001 and German application 101 28 982.0, which was filed on 8 June 2001. The fees for the claims should be calculated based on the claims remaining after the entry of this Preliminary Amendment, which results in 25 total and 1 independent claims. Consistent with the modifications to 37 CFR §1.125, the applicant has provided a substitute specification instead of a clean copy of the paragraphs and claims as they stand after amendment.

Amendments to the Disclosure

The specification as filed has been altered from the literal translation document received to delete information above the title, to insert headings according to US practice, and to insert paragraph numbering in lieu of line numbering. These changes do not introduce new matter.

Please amend paragraph **[0005]** as follows:

[0005] Various ways of resolving the last-mentioned problem are proposed for example in United States Patent Nos. 5,417,718 to Kleks (23 May 1995), 5,697,957 to Noren (16 December 1997), 5,861,013 to Peck (19 January 1999), 5,873,898 to Hemming (23 February 1999, and 5,941,903 to Zhu (24 August 1999), [US patents Nos 5 417 718, 5 697 957, 5 861 013, 5 873 898 and 5 941 903] as well as European patent application EP [-A] 0 826 392, also to Noren.

Amendments to the Claims

After the heading 'CLAIMS' and before the beginning of the claims, please insert the words: -- What is claimed is: --

Please amend the claims as follows:

1. (amended) A stimulation arrangement , comprising: [having]

a stimulation unit [which is adapted] to deliver electrical stimulation pulses for the stimulation of body tissue, and

an evaluation unit [which is adapted] to receive electrical signals in conjunction with the delivery of a stimulation pulse and to evaluate same for checking stimulation success,

wherein [characterised in that] the evaluation unit detects such signal features [is adapted to detect] in the received signal [such signal features] that characterize [which characterise] a case of lack of stimulation success, and delivers [to deliver] a corresponding output signal.

2. (amended) The [A] stimulation arrangement of claim 1, wherein [as set forth in claim 1 characterised in that]

the evaluation unit associates the [is adapted to associate a] received electrical signal with a stimulation pulse in respect of time and detects [to detect] a feature of a polarization artifact [polarisation artefact] as a signal feature in the received signal.

3. (amended) The [A] stimulation arrangement of claim 2, wherein [as set forth in claim 2 characterised in that]

the evaluation unit evaluates [is adapted to evaluate] the signal measured after the expiry of a blanking period after the delivery of a stimulation pulse and for the purposes of detecting a feature of a polarization artifact [polarisation artefact] to determine a first integral (INGR1) of the measured signal over the time in which the signal measured after the blanking period extends above the signal amplitude during the blanking period.

4. (amended) The [A] stimulation arrangement of claim 3, wherein [as set forth in claim 3 characterised in that]

the evaluation unit determines [is adapted to determine] a second integral (INGR2) of the measured signal over a period of time beginning with the moment in time at which the first integral ends, and which ends with the end of a predetermined time window which begins with the end of the blanking period.

5. (amended) The [A] stimulation arrangement of claim 3, [as set forth in claim 3] wherein

the signal received after the delivery of a stimulation pulse is received in the form of time-discrete sample values, and

wherein [characterised in that] the evaluation unit further comprises [includes] a counter that determines [which is adapted to determine] the number (CNT1) of sample values of the received signal, which fall into the time over which the first integral is formed.

6. (amended) The [A] stimulation arrangement of claim 4, wherein [as set forth in claim 4 characterised in that]

the evaluation unit forms [is adapted to form] an indicator flag (CROSS) having a [whose] value that depends on whether the measured signal during the period for determining the second integral crosses the signal amplitude which obtains during the blanking period.

7. (amended) The [A] stimulation arrangement of claim 6, wherein [as set forth in claims 1 through 6 characterised in that]

the evaluation unit applies [is adapted to apply] the following algorithm to an input signal:

If NEG_AMP<zn Then Capture
If CNT1>w1 Then AREA=INGR1+INGR2 Else AREA=INGR2
If AREA<al Then Non-Capture
Elseif CNT1>w1 Then (If MAX_POS<zp Then Non-Capture Else Capture)
Elseif AREA>a2 Then Capture
Elseif CROSS = 1 Then Capture
Else Non-Capture.

8. (amended) The [A] stimulation arrangement of claim 7, wherein [as set forth in one of claims 1 through 7 characterised in that]

the evaluation unit [is adapted to] continuously compares [compare] a received electrical signal to a limit value (zn) for the negative signal amplitude and delivers a signal that characterizes a stimulation success in the case of the limit value (zn) being negatively exceeded [to deliver a signal which characterises a stimulation success].

Please add the following new claims:

9. (new) The stimulation arrangement of claim 1, wherein
the evaluation unit applies the following algorithm to an input signal:
If NEG_AMP<zn Then Capture
If CNT1>w1 Then AREA=INGR1+INGR2 Else AREA=INGR2
If AREA<al Then Non-Capture
Elseif CNT1>w1 Then (If MAX_POS<zp Then Non-Capture Else Capture)
Elseif AREA>a2 Then Capture
Elseif CROSS = 1 Then Capture
Else Non-Capture.

10. (new) The stimulation arrangement of claim 2, wherein
the evaluation unit applies the following algorithm to an input signal:
If NEG_AMP<zn Then Capture
If CNT1>w1 Then AREA=INGR1+INGR2 Else AREA=INGR2
If AREA<al Then Non-Capture
Elseif CNT1>w1 Then (If MAX_POS<zp Then Non-Capture Else Capture)
Elseif AREA>a2 Then Capture
Elseif CROSS = 1 Then Capture
Else Non-Capture.

11. (new) The stimulation arrangement of claim 3, wherein
the evaluation unit applies the following algorithm to an input signal:
If NEG_AMP<zn Then Capture
If CNT1>w1 Then AREA=INGR1+INGR2 Else AREA=INGR2
If AREA<al Then Non-Capture
Elseif CNT1>w1 Then (If MAX_POS<zp Then Non-Capture Else Capture)
Elseif AREA>a2 Then Capture
Elseif CROSS = 1 Then Capture
Else Non-Capture.

12. (new) The stimulation arrangement of claim 4, wherein
the evaluation unit applies the following algorithm to an input signal:

If NEG_AMP<zn Then Capture
If CNT1>w1 Then AREA=INGR1+INGR2 Else AREA=INGR2
If AREA<al Then Non-Capture
Elseif CNT1>w1 Then (If MAX_POS<zp Then Non-Capture Else Capture)
Elseif AREA>a2 Then Capture
Elseif CROSS = 1 Then Capture
Else Non-Capture.

13. (new) The stimulation arrangement of claim 5, wherein
the evaluation unit applies the following algorithm to an input signal:
If NEG_AMP<zn Then Capture
If CNT1>w1 Then AREA=INGR1+INGR2 Else AREA=INGR2
If AREA<al Then Non-Capture
Elseif CNT1>w1 Then (If MAX_POS<zp Then Non-Capture Else Capture)
Elseif AREA>a2 Then Capture
Elseif CROSS = 1 Then Capture
Else Non-Capture.

14. (new) The stimulation arrangement of claim 1, wherein
the evaluation unit continuously compares a received electrical signal to a limit value (zn) for the negative signal amplitude and delivers a signal which characterizes a stimulation success in the case of the limit value (zn) being negatively exceeded.

15. (new) The stimulation arrangement of claim 2, wherein
the evaluation unit continuously compares a received electrical signal to a limit value (zn) for the negative signal amplitude and delivers a signal which characterizes a stimulation success in the case of the limit value (zn) being negatively exceeded.

16. (new) The stimulation arrangement of claim 3, wherein
the evaluation unit continuously compares a received electrical signal to a limit value (zn) for the negative signal amplitude and delivers a signal which characterizes a stimulation success in the case of the limit value (zn) being negatively exceeded.

17. (new) The stimulation arrangement of claim 4, wherein

the evaluation unit continuously compares a received electrical signal to a limit value (zn) for the negative signal amplitude and delivers a signal which characterizes a stimulation success in the case of the limit value (zn) being negatively exceeded.

18. (new) The stimulation arrangement of claim 5, wherein

the evaluation unit continuously compares a received electrical signal to a limit value (zn) for the negative signal amplitude and delivers a signal which characterizes a stimulation success in the case of the limit value (zn) being negatively exceeded.

19. (new) The stimulation arrangement of claim 6, wherein

the evaluation unit continuously compares a received electrical signal to a limit value (zn) for the negative signal amplitude and delivers a signal which characterizes a stimulation success in the case of the limit value (zn) being negatively exceeded.

20. (new) The stimulation arrangement of claim 8, wherein

the evaluation unit continuously compares a received electrical signal to a limit value (zn) for the negative signal amplitude and delivers a signal which characterizes a stimulation success in the case of the limit value (zn) being negatively exceeded.

21. (new) The stimulation arrangement of claim 9, wherein

the evaluation unit continuously compares a received electrical signal to a limit value (zn) for the negative signal amplitude and delivers a signal which characterizes a stimulation success in the case of the limit value (zn) being negatively exceeded.

22. (new) The stimulation arrangement of claim 10, wherein

the evaluation unit continuously compares a received electrical signal to a limit value (zn) for the negative signal amplitude and delivers a signal which characterizes a stimulation success in the case of the limit value (zn) being negatively exceeded.

23. (new) The stimulation arrangement of claim 11, wherein

the evaluation unit continuously compares a received electrical signal to a limit value (zn) for the negative signal amplitude and delivers a signal which characterizes a stimulation success in the case of the limit value (zn) being negatively exceeded.

24. (new) The stimulation arrangement of claim 12, wherein

the evaluation unit continuously compares a received electrical signal to a limit value (zn) for the negative signal amplitude and delivers a signal which characterizes a stimulation success in the case of the limit value (zn) being negatively exceeded.

25. (new) The stimulation arrangement of claim 13, wherein

the evaluation unit continuously compares a received electrical signal to a limit value (zn) for the negative signal amplitude and delivers a signal which characterizes a stimulation success in the case of the limit value (zn) being negatively exceeded.

REMARKS

In the claims, multiple dependencies have been removed by distributing the limitations.

The above claims have also been amended to correspond them more closely to United States claiming practice, namely, by removing reference numerals, and by clarifying antecedent basis issues. In this manner, they should be in condition for allowance. These amendments to the claims are fully supported by the literal translation into English of the specification as filed in Germany, and they do not introduce new subject matter.

The claims as amended are incorporated into the substitute specification, so no other clean copy of the claims is presented.

Respectfully submitted,

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